

COMPONENTS

FAQ

Q Why do some processor coolers require you to remove the motherboard and install a backing plate?

A Mounting plates are most common on coolers designed for use with Intel LGA775 processors. Rather than using the traditional mounting bracket and clip, the new design has four holes around the processor that accept plastic clips on the cooler.

This doesn't always provide the tightest fit, and large coolers can place strain on the plastic clips. A metal blanking plate fitted beneath the motherboard and attached with a self-adhesive tab provides a sturdy base into which you can screw the cooler. This makes a firmer, more robust connection, although you have to remove your motherboard from the case to fit the plate. AMD's motherboards have a mounting bracket, so it's rare to find coolers that need a blanking plate, although some exist.

David Ludlow
Deputy Editor

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GIGABYTE GZ-X1

★★★★★
£30 inc VAT



When you're building a budget PC, it's tempting to buy the cheapest case you can find. This might make financial sense, but many of the really cheap cases are a nightmare to build, rickety when complete and leak a lot of noise. Gigabyte's GZ-X1 shows that you can get a low-cost, high-quality case that looks as if it cost a lot more.

The GZ-X1 is available in black or silver. The front is uncomplicated but looks smart and neat. For such an inexpensive case, we were pleased to see that a flap covers the top 5 1/4in drive bay. This means you don't need to buy an optical drive with a bezel that matches the case colour. A button on the front of the flap pushes through to the optical drive's eject button, and a clear plastic panel lets the drive's access light shine through. Standard blanking plates cover the remaining three 5 1/4in drive bays, and you remove and discard these when you want to plug in other peripherals. There are also two external 3 1/2in drive bays with removable blanking plates. This gives you enough room to fit a floppy disk and a memory card reader.

Finally, the brushed metal flap at the bottom of the case hides the two front USB2 ports, plus FireWire, headphone and microphone ports. It feels well built, and the hinges don't feel as if they'd ever break.

There's little in the way of instructions, but building a PC into the GZ-X1 should not be a problem as it's easy to take apart. By removing a few thumbscrews, you can slide both side panels off. There's plenty of room to slide in a motherboard and Gigabyte provides the necessary risers, although you need to screw them into place



according to the position of your motherboard's screw holes.

There's loads of room for drives, too, with five 3 1/2in internal drive bays in addition to the two external and four 5 1/4in bays.

Surprisingly for a cheap case, the GZ-X1 doesn't require any screws, as plastic clips hold the drives in place. The internal drive bays have two clips, one for each side of the drive, but the external bays have clips only on one side. This is presumably to save money and because the front bezel will help keep external drives steady. Even so, we'd have preferred to see clips on both sides. The expansion card slots are held in place by a hinged bracket that also has no screws. You'll need to snap out a slot's blanking plate to install a card. It's good to see Gigabyte has rounded off the metal inside the case, as this means you're unlikely to cut yourself on any sharp edges.

Two 120mm fans are provided, which attach to a splitter cable that plugs into a single motherboard three-pin header. They're not silent, but they're fairly quiet, and most of the noise is caused by moving air. There are no fan speed controls, but you could replace the fans with others that have them, or install a fan controller. If you're building a low-power PC and you really want to cut down on noise, you can even unplug one.

The GZ-X1 isn't perfect and doesn't make for the quietest PC ever. However, its tough, well-constructed interior, screwless design and tons of drive bays make it an excellent budget choice. If you can spend a little more, Coolermaster's Centurion 5, which is slightly better built, costs around £43. For those on a tight budget, though, Gigabyte's GZ-X1 is excellent value.

David Ludlow

SUMMARY

- ✓ Excellent value
- ✓ Good build quality
- ✗ Sides are quite thin

PC CASE Takes ATX motherboards, seven 3 1/2in drive bays (two external, five internal), five 5 1/4in drive bays, 2x USB2 ports, 1x FireWire port, 2x audio ports, 2x 120mm fans
PART CODE GX-X1BPD-100
SUPPLIER www.eclipsecomputers.com
DETAILS www.gigabyte.com.tw

Also consider...

INTEL Core 2 Duo E6700

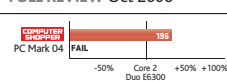
★★★★★
£301 inc VAT



Intel's new processor is based on the company's mobile technology. It is designed to be much more efficient than the P4. It's incredibly quick, achieving some of the highest benchmark results we've ever seen. You'll need a new Intel 965 or 975-based motherboard to use the E6700, but it's worth every penny, as it's by far the best-value processor you can buy.



PROCESSOR Two cores running at 2.66GHz, LGA775, 267MHz external bus, 4MB L2 cache PART CODE BX805576700 SUPPLIER www.lambda-tek.com DETAILS www.intel.com
✓ Extremely fast; great value
FULL REVIEW Oct 2006



GIGABYTE GV-RX195P 256D-RH

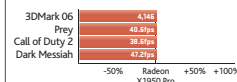
★★★★★
£138 inc VAT



Gigabyte's Radeon X1950 Pro-based graphics card uses a Zalman VF700 cooler, so it's silent as well as powerful. It's incredibly fast, tearing through our games tests with an impressive score of 50.7fps in Call of Duty 2. The price is unbelievable. This is the best-value graphics card you can buy.



GRAPHICS CARD ATI Radeon X1950 Pro, PCI-E x16 interface, 36 pixel pipelines, 256MB GDDR3 memory running at 700MHz (1.4GHz effective), 600MHz core speed, two DVI, TV-out PART CODE GV-RX195P256D-RH SUPPLIER www.lambdatek.com DETAILS www.gigabyte.com.tw
✓ Excellent performance
✗ Fan quite bulky
FULL REVIEW Mar 2007



ECS N8800GTX-768MX

★★★★★

£370 inc VAT

This high-end, Nvidia-based graphics card features a top-end GeForce 8800GTX graphics chip. We've seen this chip before, but it hasn't stopped impressing us. The new architecture ditches pixel pipelines in favour of flexible stream processors. These can perform a variety of jobs, from shaders to geometry, so the card draws any environment quickly.

The N8800GTX-768MX has 128 stream processors running at 1.35GHz and 768MB of GDDR3 memory running at 900MHz (1.8GHz effective). These specifications make for excellent games performance, as you can see from our results. ECS's card slightly outstripped Foxconn's GeForce 8800 GTX, reviewed in *Shopper* February 2007. Call of Duty 2 refused to work at first, as the current Windows Vista drivers are



incompatible with the game's anti-aliasing. However, forcing 4x anti-aliasing in Nvidia's control panel sorted the problem with no slowdown, even though ECS's N8800GTX-320MX (below) struggled with the same settings. Running games at high resolution was no problem, either. Turning Prey up to 1,600x1,200 caused no ill effect, and we still managed to get 66.4fps.

The N8800GTX-768MX is compatible with DirectX 10, so you'll be able to play new games when they're released. This is the fastest graphics card we've ever seen, but it is expensive. If you haven't got the budget for this, ECS's N8800GTX-320MX is much better value and is still very quick.

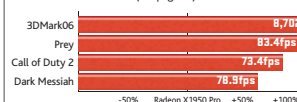
David Ludlow

SUMMARY

- ✓ Incredibly fast
- ✓ DirectX 10 compatible
- ✗ Expensive

GRAPHICS CARD Nvidia GeForce 8800GTX, 575MHz core speed, 128 stream processors running at 1.35GHz, 768MB GDDR 3 memory running at 900MHz (1.8GHz effective), PCI-E x16, 2x DVI, TV out
PART CODE N8800GTX-768MX
SUPPLIER www.dabs.com
DETAILS www.ecs.com.tw

PERFORMANCE (see page 58)



ECS N8800GTS-320MX

★★★★★

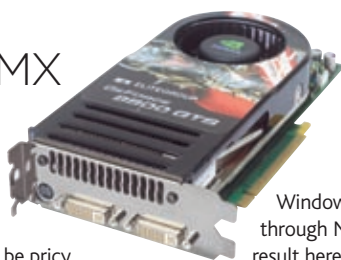
£182 inc VAT



Nvidia's GeForce 8800 range is fast, but cards that use the graphics chip tend to be pricy.

ECS's N8800GTS-320MX is a little cheaper, with half the memory of the standard GeForce 8800GTS. Still, 320MB of GDDR3 memory running at 800MHz (1.6GHz effective) is not a piddling amount.

This reduction in memory is the only change over other cards in the range. The N8800GTS-320MX has the same 96-stream processors running at 1.2GHz and 500MHz core speed as a 640MB 8800GTS. It's a very powerful card that performed only a touch slower than a 640MB 8800GTS. Call of Duty 2 proved to be an anomaly, however, as Nvidia's current drivers don't support Call of Duty 2's anti-aliasing setting under



Windows Vista. Enabling 4x anti-aliasing through Nvidia's software gave us the poor result here. It indicates that this card might have problems with older games if you run Vista.

Apart from this, its performance was impressive. The N8800GTS-320MX can handle games at high resolutions; Prey ran at a fast frame rate of 46.7fps at 1,600x1,200. The card is compatible with DirectX 10, so you can play newer games when they're released.

The N8800GTS-320MX is a very fast, powerful graphics card. It'll happily play today's games and is ready for next-generation DirectX 10 games, too. Driver support under Windows Vista isn't perfect yet, but this is no problem for new games.

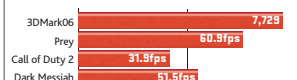
David Ludlow

SUMMARY

- ✓ Good value
- ✓ Very fast
- ✗ Problematic Vista drivers

GRAPHICS CARD Nvidia GeForce 8800GTS, 500MHz core speed, 96 stream processors running at 1.2GHz, 320MB GDDR 3 memory running at 800MHz (1.6GHz effective), PCI-E x16, 2x DVI, TV out
PART CODE N8800GTS-320MX
SUPPLIER www.dabs.com
DETAILS www.ecs.com.tw

PERFORMANCE (see page 58)



FOXCONN WinFast MCP61SM2MA

★★★★★

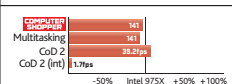
£35 inc VAT



If you're after a budget motherboard, you won't get much cheaper than this. Onboard graphics, an AM2 processor slot and four DIMM slots give you everything you need to build a decent PC. It's ideal for the budget builder.



AMD MOTHERBOARD Nvidia Nforce 405 chipset, supports AMD Socket AM2 processors, 2x PCI, 1x PCI-E x1, 1x PCI-E x16 slots, 4x DIMM slots, 10/100 Ethernet, 4x USB2, FireWire
PART CODE MCP61SM2MA
SUPPLIER www.lambda-tek.com
DETAILS www.foxconn channel.com
 ✓ Onboard graphics
 ✗ Memory slots get in the way of graphics card
FULL REVIEW Jun 2007



SHUTTLE XPC SD32G2

★★★★★

£200 inc VAT



The SD32G2 looks smart, but you'll need an optical drive with a silver bezel to

avoid spoiling its looks. It's easy to build thanks to the detailed instructions. Performance was excellent in our 2D tests, near the top of the recent Labs. With support for Core 2 Duo processors, it's an excellent barebones kit.



BAREBONES PC LGA775 processor socket, 2x DDR2 533/667 DIMM slots, Intel 945G graphics, 1x PCI-E x16, 2x SATA ports, 10/100/1,000 network, 6x USB2, 2x FireWire, 7.1 audio, one 5¼in bays, two 3½in bays
PART CODE SD32G2
SUPPLIER www.ebuyer.com
DETAILS www.shuttle.com
 ✓ Plenty of room inside case; Easy to assemble
FULL REVIEW Apr 2007



ZEROTHERM CF800

★★★★★

£20 inc VAT

If you want to replace your LGA775 cooler, ZeroTherm's CF800 is a good choice. The low-profile cooler and fan kept our Core 2 Duo E6300 processor running 5°C cooler under load than the reference Intel cooler. Its automatic fan speed adjustment should help ensure that your PC is quieter, too.



PROCESSOR COOLER Supports Intel LGA775 processors, 90mm fan, 800-2,300rpm spin speed, 16-30dBa operating volume
PART CODE CF800
SUPPLIER www.quietpc.com
DETAILS www.zerotherm.net
 ✓ Good value; automatic fan-speed adjustment
 ✗ Standard Intel cooler has similar performance
FULL REVIEW Apr 2007



MSI K9AGM2

★★★★★

£37 inc VAT



Last month, we reviewed ECS's AMD690GM-M2 motherboard, the first board to use AMD's R690G chipset. This month, we look at the first MSI motherboard to use the chipset, the K9AGM2. The most obvious difference between the two is that MSI has fitted its board with an HDCP-compliant HDMI output that can deliver sound as well as video. It makes the K9AGM2 ideal for anyone who wants to build a media centre PC. The motherboard is passively cooled, so you can build a very quiet PC.

Aside from the HDMI port, the K9AGM2 has a similar range of expansion options as ECS's AMD690GM-M2. There are two PCI, a PCI-E x1 and a PCI-E x16 slots for expansion. The four SATA2 ports provide plenty of room for hard disks, and you can use them in a RAID array. The back panel is similarly well specified, with four USB2 ports, FireWire and Gigabit Ethernet ports. The motherboard has headers for further USB2 and FireWire ports, but MSI doesn't provide any extra ports in the box.

The motherboard accepts all AMD Socket AM2 processors, so you've got a wide choice both now and in the future. It's a shame there are only two memory slots, though, as you'll have to remove your existing memory if you want to upgrade in the future.

Performance was very good, equalling the 2D scores we got from ECS's motherboard. Graphics performance was less impressive, so you'll need to install a PCI-E x16 graphics card to play games. For watching movies and performing office tasks, though, the onboard Radeon X1250 graphics will do the job.

The best thing about this motherboard is its incredibly low price. It's one of the best budget motherboards we've seen, as it can be upgraded with faster components. It excels as the basis of a media centre PC, though, as it provides all of the outputs you'll need.

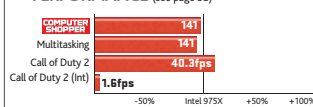
David Ludlow

SUMMARY

- ✓ Excellent value
- ✓ HDMI output
- ✗ Only two memory slots

AMD MOTHERBOARD AMD 690G chipset, supports AMD Socket AM2 processors, 2x PCI slots, 1x PCI-E x1 slot, 1x PCI-E x16 slot, 2x DIMM slots, 1x Gigabit Ethernet, 4x USB2 ports
PART CODE K9AGM2
SUPPLIER www.lambda-tek.com
DETAILS www.msi.com.tw

PERFORMANCE (see page 58)



ZALMAN CNPS9700 NT

★★★★★

£49 inc VAT

Keeping your processor cool can extend its life and enables you to get better performance through overclocking. Zalman's CNPS9700 NT aims to do that job, and do it quietly. It's one of the largest heatsinks we've seen, with a huge 110mm fan mounted in the middle. The large fan has its benefits, though, as it can move the same volume of air as a smaller fan while spinning more slowly. This means it can shift more air while making less noise.

Zalman provides the CNPS9700 NT with fitting kits for all AMD and Intel LGA775 processors. If you have an Intel processor, you'll need to remove your motherboard and install the backing plate, to which you then screw the CNPS9700. We installed it on an AMD Athlon 64 X2 4200+. This was an easy job once we had applied the supplied thermal grease, as the cooler's clips simply attach to the motherboard's existing mount.

The cooler has a four-pin PWM power connector, which gives the motherboard fine control over the fan's speed based on the processor temperature. When we first turned our PC on, the fan ran very slowly and we couldn't hear it at all. However, when the processor utilisation reached 100 per cent during our tests, the fan revolved at full speed and was clearly audible. Still, at a maximum of 34dB(A) it's not too loud, while the minimum of 19dB(A) is, to all intents and purposes, silent.

Compared with the standard AMD reference cooler, the CNPS9700 NT did an amazing job. While the AMD cooler kept our processor at only 29°C when idle, the CNPS9700 NT managed a low 24°C. At 100 per cent processor utilisation for 30 minutes, the AMD cooler kept our processor at 45°C, whereas the CNPS9700 NT kept the processor at 29°C. This allows plenty of scope for overclocking and should help to prolong your processor's life.

The CNPS9700 NT is a great cooler if you're going to overclock and does an amazing job of keeping your processor cool. It is expensive, though, and for those who don't intend to overclock their processor, Arctic Cooling's Freezer 64 is almost as good and costs just £16.

David Ludlow

SUMMARY

- ✓ Very effective
- ✓ Four-pin PWM power connector
- ✗ Expensive

PROCESSOR COOLER Supports AMD and Intel LGA775 processors, 110mm fan, heatsink, 19-34dB(A) noise range, four-pin PWM power connector
PART CODE CNPS9700 NT
SUPPLIER www.quietpc.com
DETAILS www.zalman.com

CHOOSING A... Processor

Follow the steps to find your ideal specs

MANUFACTURER: AMD

PROCESSOR: Sempron 3000+

SOCKET: AM2

Recommended minimum in grey

1 A processor with the minimum specifications above costs around £35. It's not particularly quick and is best suited to standard office applications. As it uses the latest Socket AM2 interface, you'll need a new motherboard to match, but you'll be able to upgrade to any of AMD's newer processors.

2 If you're upgrading only your processor, you'll be limited by your motherboard's socket type. AMD Socket 754 boards provide the least choice, with an Athlon 64 3400+ the fastest processor you can buy. Socket 939 motherboards provide more options, including dual-core X2 processors and going as fast as the FX-60. Socket AM2 is the latest, supporting AMD's full range.

Intel's LGA775 socket has been around for a few years, but check your motherboard's manual for processor support as only the latest chipsets support Intel's Core 2 Duo processors.

3 If you're building a PC from scratch, it's best to pick the processor first and choose a motherboard to match. If you're building a basic office PC, a single-core Intel Celeron or AMD Sempron will be fine. If you do a lot of intensive tasks, a dual-core AMD X2 or Intel Core 2 Duo processor is a better choice.

The Core 2 Duo range is our current favourite. The E6300 (around £160) is a good entry-level choice, while the E6700 (around £350) is very quick. If your motherboard doesn't support Core 2 Duo, the Pentium D range of dual-core processors is still quick. The old single-core Pentium 4s and Athlon 64s are no longer good value and we'd avoid them unless your motherboard doesn't support dual-core.

4 Want to overclock? Intel's Extreme processors and AMD's FX processors are multiplier unlocked, so you can adjust their speeds without affecting your memory or other components. However, the Core 2 Extreme X6800 costs around £650.

5 You can buy Intel's mobile Core 2 Duo and Core Duo processors, too. However, you'll need a motherboard or barebones with a compatible Socket 479. Mobile processors are more expensive, so buy one only if you need to.